



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Microanalysis Standard Operating Procedures Manual

Tire Make and Model Determination

Tire Make and Model Determination

1. Scope

The purpose of this examination is to provide investigating officers and district attorneys general with possible tire makes and models from tire impression(s) left a crime scene. This requires the use of resources available through tire publications, the internet and the tire treads available in the Shoeprint Image Capture and Retrieval software database (SICAR).

2. Terms and Definitions

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for applicable terms and definitions.

3. References

William J. Bodziak, Tire Tread and Tire Track Evidence, CRC Press, Boca Raton, Florida, 2008.

Lawren Nause, Forensic Tire Impression Identification, National Research Council of Canada, 2001.

SWGTHREAD – Scientific Working Group for Shoeprint and Tire Tread Evidence

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for further references in tire impression analysis

4. Examination Procedures

4.1. Evidence Types

Photographs, digital images and negatives of tire impressions, casts of tire impressions, objects that contain a tire impression and lifts of tire impressions

4.2. Instruments and Equipment

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for instruments and equipment.



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4.3. Reagents and Chemicals

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for reagents and chemicals used in processing tire impressions.

4.4. Reagent Preparation

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for reagent preparation.

4.5. Procedural and Chemical Precautions

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for precautions.

4.6. Limitations

Examination of the questioned impression, in order to supply investigative information (i.e. type of tire, manufacturer, model or general type), is limited to the tread patterns in the SICAR database, *Tread Assist* software and *Tire Tread Guide*.

Retread tire information is limited.

4.7. Procedure

Document submitted samples according to *Microanalysis Quality Assurance Policy*.

See Microanalysis Standard Operating Procedure *Comparison of Tire Impressions* for the analysis of submitted tire impressions.

Using the Tread Assist and/or SICAR Software

Determine if the impression from the scene is consistent with any tires within the software and/or tire guide books. Consult the internet for additional information if necessary. If they are inconsistent, then the analysis is complete and a report is generated.



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If the impression is consistent with tread pattern(s) within the “Tread Assist” software, “Tread Design Guides”, or SICAR software, then the tire manufacturer will be contacted and asked the following information:

Does your company make this tread design?
Under what names was it manufactured and sold?
Years of manufacturing
Is this tire an original equipment (OEM) tire or after market tire?

It is also recommended that a known tire be located and compared to assure accuracy of determination. Photographs shall be taken of this tire and included as part of the case file notes.

If a tire size determination is necessary, it is recommended that the examiner contact the legal department of the manufacturer and request assistance with this request.

5. Measurement Traceability

No measurements are involved in this examination.

6. Reference Materials

SICAR software database
Yearly “Tread Assist” Software, Bennett Garfield Publications
Yearly “Tread Design Guides, Nancy Garfield Chychrun publisher.
Yearly “Who Makes it and Where” tire directory, Bennett Garfield Publications

7. Reports

A list of possible tire makes and models are provided to the requesting officer by telephone (after technical review) and by official report. The report should always state the limitations of the software and reference guides. (Ex. Physical analysis of the cast revealed it to have a tread design similar to (list of makes/models). However, there may be other brands with this tread design.